Application No.: 10/577,326

Inventor: Kenji MITSUI, et al.

Preliminary Amendment

IN THE SPECIFICATION

Please replace the heading on page 1 before paragraph [0001] as follows:

Technical Field of the Invention

Please replace the heading on page 1 before paragraph [0002] as follows:

Discussion of the Background Art

Please replace paragraph [0002] beginning at page 1 with the following rewritten

paragraph:

[0002]

A surface pressure applying device for a slide gate described in Patent Document 1 JP

08-117985A and a surface pressure applying device for a slide valve described in Patent

Document 2 JP 2003-200256A can be given as examples of this type of conventional surface

pressure applying device for a slide valve.

A common slide valve device is placed at a bottom of a vessel for molten metal, and

includes two or three plate bricks with an opening for controlling an outflow of the molten

metal by sliding one of the plate bricks. While in use, the plate bricks receive pressure in

proportion to the depth and density of the molten metal, but resist the pressure from the

molten metal by keeping in close contact to each other utilizing the repulsive force of

distorted springs. It is therefore common that the required spring force amounts to a few to

ten-odd tons.

The structure disclosed in Patent Document 1 JP 08-117985A distorts the springs and

thus applies pressure to the plate bricks by making a surface pressure bar and a roller engage

with each other.

2

Preliminary Amendment

The structure disclosed in Patent Document 2 JP 2003-200256A relieves the surface pressure with a large-diameter roller which is attached to a surface pressure control bar and climbs over a mountain-like tapered portion formed on the top surface of a surface pressure

releasing bar, thus depressing the surface pressure releasing bar and distorting the springs.

Please replace paragraph [0003] at page 2 with the following rewritten paragraph:

[0003]

The structure of Patent Document 1 JP 08-117985A, where the surface pressure bar and the roller are engaged with each other to distort the springs and apply pressure to the plate bricks, cannot avoid insufficient spring distortion which results from the friction between and deformation of the surface pressure bar and the roller. When the springs are not distorted enough, there is a possibility that the pressure applied to the plate bricks cannot withstand the pressure from the molten metal, thus inviting an accident in which the molten metal leaks.

Please replace paragraph [0004] at page 2 with the following rewritten paragraph: [0004]

In the structure of Patent Document 2 JP 2003-200256A, where a large-diameter roller attached to a surface pressure control bar climbs over a mountain-like tapered portion formed on the top surface of a surface pressure releasing bar, thus depressing the surface pressure releasing bar, distorting the springs, and relieving the surface pressure, the tapered portion on the side on which the large-diameter roller climbs up needs to have as small an angle as possible to reduce the resistance met during the climb. The mountain-like tapered portion formed on the top surface of the surface pressure releasing bar is therefore given an asymmetric shape, making it difficult to match a spring arrangement center with the center

3

Application No.: 10/577,326

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Preliminary Amendment

between the peaks of two mountains. As a result, different loads are applied to two large-

diameter rollers, and the one climbing over the mountain-like tapered portion that is nearer to

the spring arrangement center receives an excessive load to be deformed and galled. The

deformation and galling could prevent smooth movement.

Please replace paragraph [0005] at page 3 with the following rewritten paragraph:

[0005]

Patent Document 1: JP 08-117985 A

Patent Document 2: JP 2003-200256 A

Disclosure Summary of the Invention

Problem to be solved by the Invention

Please delete the heading preceding paragraph [0007] at page 4.

Please delete the heading preceding paragraph [0008] at page 4.

Please replace paragraph [0009] at page 5 with the following rewritten paragraph:

[0009]

FIG. 1] A FIG. 1 illustrates a sectional view showing a surface pressure applying

device for a slide valve according to the present invention. (Embodiment 1)

[FIG. 2] A FIG. 2 shows a side sectional view of FIG. 1.

[FIG. 3] A FIG. 3 shows a sectional view showing another mode of FIG. 1.

(Embodiment 2)

[FIG. 4] A FIG. 4 shows a side sectional view of FIG. 3.

4

Application No.: 10/577,326 Inventor: Kenji MITSUI, et al.

Preliminary Amendment

[FIG. 5] A FIG. 5 shows a sectional view showing still another mode of FIG. 1.

(Embodiment 3)

[FIG. 6] A FIG. 6 shows a side sectional view of FIG. 6.

Please replace paragraph [0013] at page 6 with the following rewritten paragraph: [0013]

A spring holder 12 for holding plural a plurality of compression springs 11 as surface pressure applying springs is placed on each side of the housing 1 along a longitudinal direction of the housing 1. A surface pressure releasing plate 13 is placed underneath the spring holder 12 in a manner in which the surface pressure releasing plate 13 is movable in a vertical direction integrally with the spring holder 12.

Formed on the top surface of the surface pressure releasing plate 13 are a pair of projections 14 which have at least semicircular surfaces and are distanced from each other in the longitudinal direction.